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Response to OA of 04/29/05

### Remarks

In the present response, three claims (1-3) are amended; and one claim (4) is canceled. No new matter is added. Claims 1-3 and 5-30 are presented for examination.

#### I. Objection to the Specification

The Office Action objected to the title as not being descriptive. The title is amended to be descriptive.

#### II. Claim Rejections: 35 USC § 102

Claims 1 and 4 – 5 are rejected under 35 U.S.C. §102(b) as being anticipated by USPN 5,448,515 (Fukami). Applicants respectfully traverse.

A proper rejection of a claim under 35 U.S.C. §102 requires that a single prior art reference disclose each element of the claim. See MPEP § 2131, also, *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983). Since Fukami neither teaches nor suggests each element in the rejected claims, these claims are allowable over Fukami.

Claim 1 recites numerous limitations that are not taught or suggested in Fukami. By way of example, claim 1 is reproduced below (emphasis added):

applying a magnetic field to the memory cell, the magnetic field having a magnitude less than a magnitude required to alter the magnetization orientation of the memory cell;  
observing any change in resistance of the memory cell as the magnetic field is applied; and  
determining the magnetization orientation based upon the observed change in resistance of the memory cell.

Claim 1 recites that a magnetic field is applied to the memory cell. The magnetic field, however, has a magnitude less than a magnitude required to alter the magnetization orientation of the memory cell. The claim then recites determining the magnetization

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orientation based upon the observed change in resistance of the memory cell. Nowhere does Fukami teach or suggest these elements.

In Fukami, the magnetic field applied to the memory cell has a magnitude sufficient to alter the magnetization orientation of the memory cell. Fukami reaffirms this teaching in numerous locations. For example, Fukami states:

Hence, by applying a reproduction magnetic field to change the direction of magnetization of the magnetic layer having a small coercive force, a large change in resistance at the interface between the magnetic layer and the nonmagnetic layer can be detected, thereby assuredly reproduction information with a high SN ratio. (Col. 7, lines 28-35)

The magnitude of the magnetic field in Fukami is clearly discussed in connection with FIGS. 3 and 6. For example, Fukami further teaches:

a large change in voltage occurs when the magnetic field produced by word current for reproduction is from about 9 Oe to about 20 Oe as shown in FIG. 6 showing the results of measurement on a change in voltage across the sense line with varying word current for reproduction (i.e., word magnetic field produced by word current for reproduction). As apparent from FIG. 3, this is because a change in resistance occurs when the magnetization of only the first magnetic layer 5a is reversed with that of the second magnetic layer 5b remaining unreversed with the result that the respective directions of magnetization of the adjacent magnetic layers become antiparallel to each other. (Col. 16, lines 27-39).

Thus, the magnetic field in Fukami has a magnitude sufficient to alter the magnetization orientation of the memory cells. Nowhere does Fukami teach or suggest applying a magnetic field having a magnitude less than required to alter the

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magnetization orientation of a memory cell and then determining the magnetization orientation based upon the observed change in resistance of the memory cell.

For at least these reasons, claim 1 is allowable over Fukami. Claim 1 recites other elements as well that are not taught or suggested in Fukami.

Claim 1 recites "observing **any change** in resistance of the memory cell" after applying a magnetic field with magnitude less than required to alter the magnetization orientation of the memory cell. Claim 1 then recites "determining the magnetization orientation based upon the observed change in resistance of the memory cell." Fukami does not teach or suggest observing any change in resistance of the memory cell to determine the magnetization orientation of the memory cell when the applied field is less than required to alter the memory cell. Instead, Fukami expressly teaches observing large changes in voltage as the memory cell flips between the parallel and anti-parallel states.

For at least these additional reasons, claim 1 is allowable over Fukami. A dependent claim inherits the limitation of a base claim. Thus, for at least the reason given in connection with independent claim 1, dependent claim 5 is also allowable over Fukami.

### **III. Allowable Subject Matter**

Applicants sincerely thank the Examiner for allowing claims 6-30.

The Examiner objected to claims 2-3 but indicated these claims would be allowed if rewritten in independent form. These claims are rewritten in independent form to include all the limitations of the base claim.

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### CONCLUSION

In view of the above, Applicants believe all pending claims are in condition for allowance. Allowance of these claims is respectfully requested.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. (281) 514-8236, Facsimile No. (281) 514-8332. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,



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#### CERTIFICATE UNDER 37 C.F.R. 1.8

The undersigned hereby certifies that this paper or papers, as described herein, is being transmitted to the United States Patent and Trademark Office facsimile number 571-273-8300 on this 22<sup>nd</sup> day of July, 2005.

By

Name: Be Henry

